ception when treating the questions that really move the meteorological world, but it is not so helpful as the bolder course. What we should like to know is almost as important to a subject as what we do know beyond dispute.

It is only when we reach part iv.—"Factors of Climatic Control"—that the author becomes really argumentative, and thereby most interesting, in suggesting and endeavouring to demonstrate that dust projected into the stratosphere by volcanoes is the efficient cause of prolonged changes of temperature that express themselves in climatic changes, after examining and rejecting all the other explanations which have been proposed. On reaching those chapters we feel once more in the fresh, free air, and the solicitude for the academic robe is disregarded. The oppression of the four walls of the laboratory vanishes. There is a sense of relief when the author boldly calculates the rates of fall of dust under Stokes's law without taking account of the counteracting influence of eddy motion which is so potent throughout the atmosphere in keeping solid and liquid particles in suspension. It would tax our space too much to consider why the stratosphere in particular should have to carry this additional burden, but the whole subject is full of interest, and now that he has taken off the academic gloves and faced so controversial a question as the cause of the Ice-age we look to Prof. Humphreys to let us have his views about various problems of the circulation of the atmosphere in general, and of cyclonic circulations in particular, to which in the past the meteorologists of the United States have made some notable contributions which might now be reviewed and perhaps revised. Meanwhile he deserves our hearty thanks for a very useful and handy book of reference indispensable for the meteorological library.

Napier Shaw.

New American Text-books of Botany.

(1) *General Botany for Universities and Colleges.* By Prof. Hiram D. Densmore. Pp. xii+459. (Boston and London: Ginn and Co., 1920.) 12*s*. 6*d*. net.

(2) *Laboratory and Field Exercises for "General Botany."* By Prof. Hiram D. Densmore. Pp. viii+199. (Boston and London: Ginn and Co., 1920.) 3*s*. 9*d*. net.

(1) PROF. DENSMORE'S avowed intention is to "furnish both student and instructor with a helpful and connected statement of the more important facts and principles of modern botany." It is but rarely that an elementary text-book meets the requirements of teacher and student in equal degree; in striving after this ideal, Prof. Densmore has, one fears, fallen between two stools. For the student the statement is not sufficiently connected, and the teacher of university grade should not require help in regard to such elementary matter as fills the bulk of this book.

The discontinuous character of the text is aggravated by a noticeable lack of balance. Thus while the structure of stems, leaves, and roots is disposed of in thirty-three pages, an equal amount of space is devoted to an account of plant-breeding and evolution, which, moreover, deals principally with such modern developments as Mendelism and the mutation theory, touching but lightly on the more general aspects of evolution. The discussion of floral construction is inadequate, and the same remark applies to the chapter on fungi, which, in addition, is badly arranged, and gives no clue to the phylogeny of that group, the "simple classification" on p. 243 being in reality no classification at all. The author's didactic methods are often peculiar. Growth-movements are fully discussed before any account has been given of growth itself. The complex woody stem is described before the simpler herbaceous type. Part iii. ("Representative Families and Species of the Spring Flora") would fit better into a book of Nature-study than it does into the present volume, where its usefulness is not apparent. It is only fair to note that some of the foregoing criticisms are repelled in advance in the author's preface, where he professes his adherence to a "biological, economic, and ecological point of view" in preference to a taxonomic or phylogenetic outlook.

Opinions differ widely as to the best form of elementary botanical course, but most teachers will agree that it is better to concentrate even unduly on one aspect of the science—say, phylogeny, physiology, or even taxonomy—than to adopt the kaleidoscopic method favoured by Prof. Densmore, whose hint as to the lack of interest shown by beginning students in most aspects of botany (the fortunate exception being "cellular biology") is significant. It is claimed that the sections dealing with structure follow the teachings of the "newer anatomy"; in the absence of a precise definition, one is left in doubt as to how far this claim is justified, but the reviewer has searched in vain for any important anatomical facts or theories which have not figured in our elementary text-books for many years past. No mention whatever is made of palæobotanical evidence, which one would naturally expect to have an important bearing on the "newer anatomy."

There are a number of obvious inaccuracies

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which will doubtless disappear in a second edition. Thus the toadstool in Fig. 146 which purports to be *Amanita muscaria* is clearly a Coprinus; Funaria is said to be diœcious; Kerner von Marilaun appears as "Körner"; *"Nasturtium Tropaeolum"* is an unwelcome *combinatio nova.* Among good features of the book may be noted the section on the seasonal life of certain common plants, and the inclusion of Chlamydomonas as a type for detailed study. Without a first-hand knowledge of the requirements of American universities and colleges, it is difficult to say how this book will be received in its own country. There is not likely to be much demand for it on this side of the Atlantic.

(2) The book of practical exercises, though open to the same general criticisms as its companion volume, is more satisfactory on the whole. Some important subjects, such as sieve-tubes, the stoma, the ascus, and the angiospermic ovule, might have been dealt with in more detail.

M. D.

Theban Tombs.

(1) *The Tomb of Amenemhet.* (No. 82.) Copied in line and colour by Nina de Garis Davies, and with explanatory text by Dr. Alan H. Gardiner. (The Theban Tombs Series. First and Introductory Memoir.) Pp. vii + 132 + xlvi plates. (Published under the auspices of the Egypt Exploration Fund.) (London: George Allen and Unwin, Ltd., 1915.) 2 guineas net.

(2) *The Tomb of Antefoker, Vizier of Sesostris I., and of his Wife, Senet.* (No. 60.) By N. de Garis Davies. With a chapter by Dr. Alan H. Gardiner. (The Theban Tombs Series. Second Memoir.) Pp. iii + 40 + xlviii plates. (London: George Allen and Unwin, Ltd., 1920.) 2 guineas net.

THE importance of the series of painted tombs at Thebes for the history of civilisation is at last being adequately met by publication. A "Theban Tombs Series" has been started by Mr. Davies and Dr. Gardiner with the scrupulously accurate copies by Mrs. Davies. The style is adequate to every requirement, without the fastuosity of luxurious book-making. The pictures of an age that overlaps the most brilliant civilisation of prehistoric Europe, about 1500–1200 B.C., are worthy of the fullest record that can be made.

(1) In this volume there is much to illustrate Egyptian thought and ideas. The conventions of the drawing arise from the need for a complete and absolute figure of each object, regardless of the limitations of the view of it; if it were not complete, the magic value of the figure would be impaired or lost, and a merely relative view would not suffice. At first, in the pre-pyramid times, the paintings of objects were the exact size of the object. A discussion of the magic value of paintings ends in an open verdict; those entirely hidden in the burial chamber could only be magical; while biographies and other matter which was prominent to the public were memorial. The crippling of paintings by imperfect figures of noxious animals, or erasures of important parts, shows how much magic value was considered. The eldest-son priest was effaced, to hinder the value of offerings; the eyes of figures were picked out, that they might never see again; the drawing of the surveyor's measuring-rope was cut across, that he might never use it in a future state. The whole ritual of funeral scenes is discussed here, and also the meaning of the constant formula "an offering which the king gives." The likely meaning of this is omitted, however; the regular system of food-rents, or right of boarding for the king, which we find elsewhere, may well have existed in Egypt; a later appropriation of this for the service of the dead would constitute an offering legally by the king.

(2) This volume deals with almost the earliest painted tomb at Thebes. The scenes are the usual domestic, hunting, and funeral subjects known elsewhere, but many of the phrases of the workmen are very lifelike. The figures of fallow deer show how much the desert fauna has changed. It is to be hoped that the editors will publish a large part of the hundred tombs which need their care.

W. M. FLINDERS PETRIE.

Our Bookshelf.

Hittite Seals: With Particular Reference to the Ashmolean Collection. By D. G. Hogarth. Pp. xi + 108 + x plates. (Oxford: At the Clarendon Press, 1920.) 3*l.* 13*s.* 6*d.* net.

THE opening out of the history of man during the last thirty years has been quite as surprising as the growth of other branches of science. In place of trying to extract some further ideas from the ragged relics of literature, we have learned how to understand a civilisation without any intelligible documents, and to place the remains of it in order so as to show its abilities and to tell its course. The volume here noted deals with a branch of the Hittite work which has a wide historical interest, for the small seals are distinctive in their styles, and serve to show connections with work in other lands; they also were readily carried to other countries, and thus are links with neighbouring civilisations.

Mr. Hogarth has a close knowledge of the

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